7530-00-222-3521
FEDERAL SUPPLY SERVICE
(GPO)

Please Return:

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National Zoo
Washington, D.C. 20008

Feb 28 1990 -

Puerto Morelos Botanical Gardens

610 - Yucatan Vireo
4'30 - 7 + fruit
+ 3 trees

♂ R.T. Becard
♀ Hooded oriole - supplanted Yucatan Vireo

WEV - 2'00

Atilla 2'00 grabbed fruit

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618 Yucatan vireo 60" ⊕

WEV in 20"
chased by YT vireo
↓
628 YTV 4'30
⊕ (2 trees)
⊕

249

Yucatan 4'30 tried 3 fruit got 2

WEV chased by Yucatan

then YTVireo

chased WEV

R.T. Becard

6'31 Yellowthroated (near tree)

Tried 2 fruits

2nd fruit 5x ⊕ 78"

⊕ 2nd try flew out of tree

5'50 2 Yucatan Vireo then Vireo" 3 tries → 2 squabbles

6'15 40" - pr Altamira

7'07 . Yucatan Vireo short visit

7'06 WEV chased out by [illegible] 20"
Yucatan
fruit taken
peck ⊕
peck ⊕
} 3'26"

7'21 — Pr Tityras - 40"

♂ 3 ⊕

♀ -

7'26 YTV, try 90"

7'38 4'06" - 5 tries
no fruit

7'58 - 1 x 7"
2 x 5"
x2 + 1
3 [illegible]
} YTV 5'30"

8:18 WEV in tree
20'
chased out by ??

8:30 - 2:00 WEJ tried 2 fruits

Afternoon we went km 3-4 on

Rd from PCP found trees with

moderate Bursera fruit crops

March 1

Unsprayed Airfield
had Orange Orioles singing

R.B. Spinetails (1)

1-2 WEVireos flocks of
Migrants

Tree at 9.5 had 2 fruit (not 3rd)
other trees had little fruit as well

Tree at 11.5 had 600 fruit
(we bagged 250)

Sprayed Airfield
Tree at 9.5 m had no fruit.

at 8.2 & 2 trees had several
hidden fruit 2 Peppershrikes +
1 WEV (trying at several fruit)
un

Trees at STRI transect
had little fruit

None of the marked
branches had fruit except
2 in Tree 5 (6 each)

only tree with fruit (>2)
was Tree 5 (150 fruit)?

3/2/90
Grazed Agual
8.5 & 2 Bursera

610 WEV 2'00 4 fruit
Sabbing 1 the [illegible]
[illegible]

Swallowed got 2 fruit ⊕

WEV
615 - 2'00 took 3 fruit & may [illegible] with
⊕?

622 - left area

[3-4 small trees [illegible] to
fill a discrete visit —

WEV seemed to be avoiding some
flycatcher

B-headed Trogon ;
7:00 Yellowthroat [illegible] 50" no trees
[Yucatan Vireo]

Found Bursera [illegible]
with more [illegible]

WEV – 2'30" 5 times
on 5 trial

655 ↗ got (+)

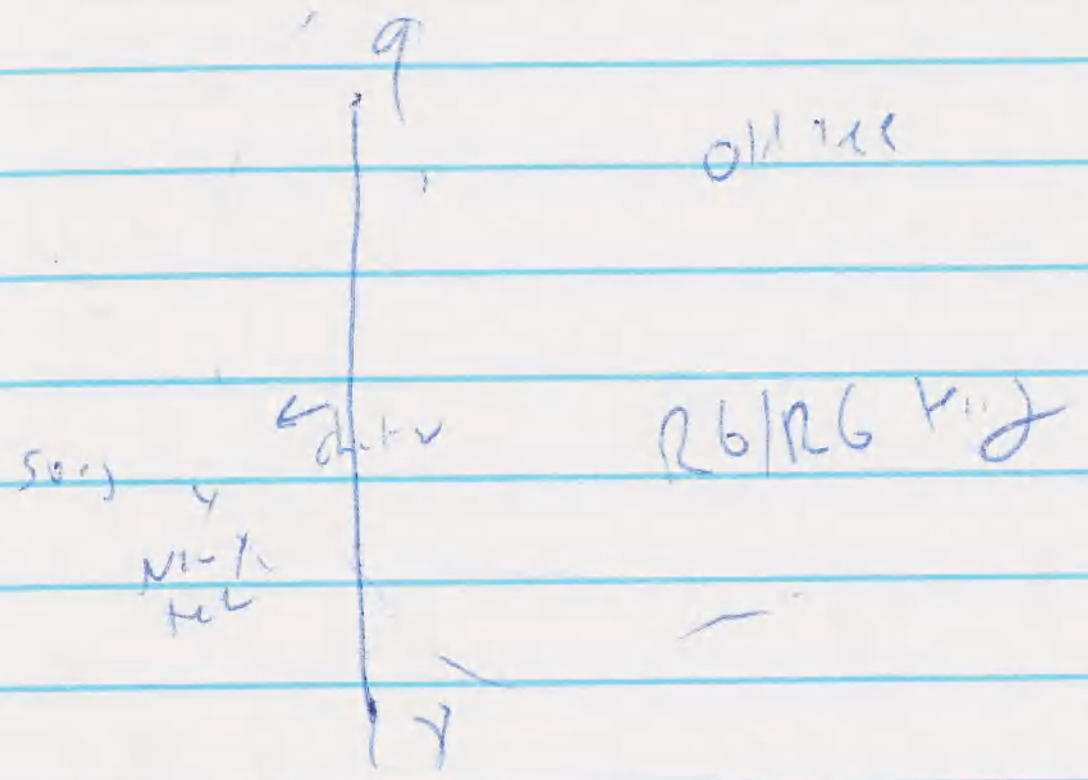
7:30 WEV – 90" + 3 times
(3 tr[illegible])

805 150" tried chances
12 times (−)
tried on 2nd (+)
~~3rd (+)~~ (−)
4th – opt –
⟶ while ari[illegible]
left

8'20 130" WEV R+6

earlier 2 [illegible] chitter + response (try)
between 2 WEV

Rb Rb trilled 3X + got nothing



Magnum Vireo came by
in Arena – but didn't stop [illegible]
in Bursera
legs (pod brown)
lemon ear
long 1"
} 5/6m Arena)

845 wind is up

In area this morning

B.h. Trogon
R.B. Peppershrike
Yucatan Flycatcher
Altamira Oriole
Hooded Oriole

lots of yellow in head

835 [illegible] WEV=

2 tries 40'' then

got one 8

left

4

18

8-5 4] 1

912 - 4TU 50''

tried 2 times

2nd was [illegible] trying

& got nothing

4TU returned poor visibility

Day 2 3/3

6:00 - Just light

6:25 - R. B Peppershrike
→ 300 2nd 3 fruit

26 WE Vireo
chased by
Peppershrike 7/10

27 - 37 10' 7 - 10' tried
sallying from 3 ft fruit

2nd small flycn

653 - 3'30"
R-b R-b WEV

2 tries

then 3 fruits
held fruit in foot
dropped one 2
flew down
after it to get?

(1 T Becard
G.F. woodpecker
Grayish Saltator
[B.H. Trogons, C.C. Robin
B.C. oriole]

7:13 WEV um
in area 60"
tried 1-2 fruit may
have got one

Y.B Elaenia
P. flyc.
S.E.
Yucatan Jay

815 - 8:30 - captured
wm WEV = 0 0 left
1 fruit

845 R-b/R-b in tree for 30"
tried + got one
fruit

110 - ~~TA B...birds~~
4 B. catbirds -
they have been going for
fruit but chased by
pr of M. tityras which
(Masked tityra)
3-4 fruit total & left 915
(chased B. catbird away)
Yellow-throated ... passed through

March 4
Airfield 8.5 tree
6.05 overcast

645 -
5'00 pr scis. flyc.
watched 1 try
4 fruits +
got 1

653 1'20" WEV 0/0
tried 3 got 2 fruits
1 took 3 hops
before completing
poor visibility

[B. L. Sullivan
T. B. Elliott]

632
120" WEV
RGRB
tried 6 fruits
may have got one ?

902 -
WEV R/ORG
105" checking 2-7
very [illegible]
got none that
I saw.

923 - 50"
0/0 WEV checking 2
vines
got one
after 3 jumps at it
very hurried

March 4th John Sterling
2:34 Start #13 tree

2:40	♀ Black-c. Tityra	1'20"	8 tries	no fruit
2:41	♂ Black-c. Tityra	50"	4 tries	3 fruit
2:45	♂ N. Parula	42"	no tries	
3:02	♂ Black c. Tityra	2'40"	1 try	1 fruit
3:48	Bright-r. Attila	2'58"	5 tries	3 fruit
3:40	♂ N. Parula	1'27"	no tries	
3:57	W-eyed Vireo	34"	1 try	no fruit
4:03	Y-thr. Vireo	1'50"	5 tries	5 fruit
4:03	Br. cr. Flycatcher	1'11"	1 try	1 fruit
4:04	♀ Bl. thr. Green Warbler	27"	knock cover off fruit-didn't eat	
4:06	Bl. headed Trogon	39"	2 Hr. pluck tries	? fruit
4:14	Lesser Greenlet	1'51"	3 tries	1 fruit
4:17	W-eyed Vireo	1'04"	2 tries	1 fruit
4:17	♂ N. Parula	54"	no tries	
4:24	♂ N. Parula	1'35"	no tries	
4:29	♂ N. Parula	1'41"	1 try	1 fruit
4:35	Bl. thr. Green Warbler	25"	no tries	
4:36	W-eyed Vireo	2'20"	4 tries	3 fruit
4:37	♂ N. Parula	4'45"	2 tries	2 fruit
5:08	Br. cr. Flycatcher	1'51"	4 tries	1 fruit
5:10	Least Flycatcher	1'20"	hover gleaned	fruit?
5:16	♂ N. Parula	47"	1 try	no fruit
5:22	Least Flycatcher	30"	1 try	1 fruit

3/5 Arrived 8 5 tree

6:00

625 pr. social flycatchers

140" - ~~5 tries~~ 8 tries
then 360" 6 fruit
2 sec }
3 sec handling } per

6:30 R.B. Peppershrike 2'00
tried + got 1 fruit?

640 200 sec WEV o/0
10 tries [illegible]
5 fruit
one fruit 5" handling time
(though had time
2x to swallow)
1 fruit 1 opening then
waiting for 120" +
returning to eat in 5" (had
trouble swallowing this one)

7:05 RT Becard 30" 2 fruit (+)
per fruit
1" handling time

7:15 Social flycatcher
no watch
6'00

R. B. [illegible] came in
while flycatcher there

9:00 [illegible]
4'00
5 tries 4 fruit
~~[illegible]~~

→ 6 no fruit devoured
+ social flycatcher
stole one
got up to 120"

3 tries no fruit

7'22 WEV
60"
[illegible] black
3 tries

WEV O/O came in
chasing the
WEV.

came in O/O
60"

7:28 4" got two fruits in 2 tries
5" } LT
OL

7:30 { [illegible] in tree
for 20"
got fruit 7" [illegible]
left when WEV O/O
[illegible]

7:38 WEV RB/RB
40" visit
2 fruits
5 sec }
7 sec } popping up

Trogon	Elaenia
P. [illegible]	Tickbird
B.T. green warbler	B. B. flycatcher
B. [illegible] oriole	L thrush
Yb flycatcher	ground base of tree in shrub

844 Scrub Vireo
in fur
50"
couldn't see
20"
Spit up seed.

903 RG RB
70"
6 tries all 7-8"
got 1 4 1/2 sec"
popped

923 WEV 0/0
8 fruit tried no success
1, 1, 2, 3, 4, 4, 8 ht

821 WEV 0/0 or Scrub Vireo
45" didn't see
well
got one fruit

Went up at 948

928 140" Scrub Vireo
tried 11"
15" got fruit 2
may have dropped seed
8"

918 - R.B Peppershrike
① seeks fruit
holds in beak
pulls off bush
perches until 28" &
drops seed
I saw it do this 28"
this morning too

920

Bursera at [illegible] –
all
Reddish capsules!

Fallen tree At km 5

had 470 fruits 22 ripe in
one day
≈ 5%/day

Trees on Rd Near Carrillo P

615
WEV flew in at 643

2nd WEV chased it out
immediately.

[illegible]
Ripe fruit
lots of
exposed arils

2nd WEV in for 20"

1 fruit 7" handling time by
popping (but WEV is [illegible] a lot)

706 N. B. Tyrannulet
picked at exposed
aril for 10 sec.

711 V. flavifrons 64"
3 fruit ⊕ 3" handling time

watched from inside woods

71– WEV 70" scared off by truck

815 = Pr Beardless tyrannulets
30–45" pick at exposed
arils

840 MW 1'30"

pick off capsule

[illegible] fruit

25", 37", 29"

left seed.

WEU [illegible] [illegible] 2 fruit

3 [illegible] [illegible]

20" [illegible]

852 - trail 3 [illegible]

BTG 5 5'00 60, 65" / 35, 40" pick and left seed

WEU 3'00 4 fruits 3-4 [illegible]

MW 2'30 → ? [illegible]

[illegible] wider 20" [illegible]

VS windy 845 →

~~9~~ 904 WEU lots of [illegible] [illegible]

[illegible] fruit 5"

also very gray [illegible]

922 PW 52'58"

32"
35"
20"
15"

picky - incomplete left most of the fruit on seeds

931

MW

2'30" 25" → ? open

17" pick at fruit (exposed fruits)

Same tree 317

245 → windy PC.

258 KEV - at first one
fruit

300
~~Pet~~ Parula Warbler ♂

2500 ft
fruit
seen
when
350 is left
only
one

3:4 PW ♂ 69"
1 fruit picked & left - 30"

3:? BTU ♀ 70"
picked fruit 25"

348 MW ♀ 2'58"
60" fruit pick & open

then picked one fruit & ignored
[illegible]

then 48" pick & open
↑ 3 tries

---

413 MW 2'33
PW 220" → didn't touch

(25, 22', 27" same
all pick-opened & left

505 MW 90" pecked at 1 fruit
then grabbed 2nd &

fly onto nearby tree!

didn't see what happened

Arrival 8.5 tree
610
[illegible]
3'00 }
4'30 } ~~6~~ 8 tries
ate 4-5
fruit
swal 4", 5, 4 ?
[illegible] 8", 2", 1"

removed [illegible]
out 2 fruits
without eating
dropped the seed
in place

625 R, BPS
2'00
5 fruit
20, 30, 60, 50 ?
[illegible]
[illegible]
628 3 flyc.
5 2 or 2 tries
13"
No swallows

Pickups [illegible] area —
not in Bursera
630 Pr Soc. flyc. — 1 try
no success
2"

6+8 to then 60"
ate 3 fruit, 7', 10", 5"
open [illegible]
& swallowed
Singing in tree!
tried 2 more 2" each

718 Rb/Rb
14" +
2" -
8" +
10" +
-
+ ?
110"
held + [illegible] & swallowed [illegible]

Tapira calling

also B G Bird

Gritted orioles

B.h Trogons

Orange orioles
Scrubvireo

Lincoln's hybrid
Yucatan flycatcher

Oita

730 Scrub Virco 20 sec.

One fruit popped

Swallowed in 9 sec.

Yucatan Virco 30" Smithers

chased out 2x by

Hummingbird !

750 "go"

WEV o/s got

1 fruit 7" - couldn't
dropped it!

tried another 2'

the 3rd chased out by

RT Hummer!!

75 400

RB Peppershrike - same time

temporarily scared virco

out of tree

Probably got 1-2 fruit

tried + failed on 2 more

800 Very brief visit by

Mangrove Virco

Weather Report

Very windy at 8.00

911 Mangrove vireo
50" fed 3 fruits ⊖ 2" each
seem to have been
checked out but
didn't see how.

↓ ↓ ↓

914 Mangrove Vireo
entered tree S.L
stationary for 30"

then went into tree

& fed one fruit ⊘
0-0
a WEV came by
in checked it out
& checked it 2-3 times
more

---

after 8'00 WEV still in
tree - very difficult to
see -
~~Mangrove reentered c~~
was chased out again
then Mangrove flew in
then was chased
WEV returned
3 fruits 2" each
then opened a rotten ? apple
WEV in tree 11'00
~~pool~~ mostly I couldn't
see it because of wind
927 - WEV 207"
five fruit - popped in each
& swallowed
one dropped
4, 5, 6, 5" 7" ht

3/8

↓ Leave Piez 10:00

3/8

3:00 →

Tall forest food tree

300 BT6 ♂? in tree when I arrive!

44" perch on trail

then MW ??

3:15 - same MW 100"

open spread + [illegible]

seed & flew out of tree

3:20 ♀ MW 20" perch at front

open 30" perch [illegible] trying front

50" visual

return Dendroica

perch 53"

3:55 MW (same)

201" all perch open + perched - leave [illegible]

19, 4, 30", 40", 50"

Start

Too Play } 180"
put in front

then
8'30" } 2nd front B sec

3rd 80"
4th 40"

fin 42"

4 40 visit MW Nozu
que pomba

Tac B
9:10 Lucky fly - 20" wild

[illegible] — [illegible]

Swallow

9:12 [c 4, Ti virco]
Th

9:16 S. flyc tac B 2'30
from R / got 1 - 5"
large

TacB WEU 20" got 1

3/0 is in middle of
book

9:16 A. morales - tried 20
got 1 - 40'
tingbird - got 1 2" [illegible]

~~Ch[illegible]~~ changed to write

Vireo got 3

lost the [illegible]

[illegible] - [illegible]

[illegible] - [illegible]

[illegible] 420"

12:5 Saul flyeater

↓ nada

Pepperhill – 40"
20"
20"

3/22 Uxmal

Tree in front of Mission
Ehd – fruit 4-10mm
~~flowers~~ 8,000 fruit
had flowers in branch tips
10-15 New bright green
fruits!

~~Myrtle~~ In Ruins – lots
of Bursera in fruit – some in
flower!
~~Bryan~~ Kingbirds + social
Flycatchers in Many trees.
Saw Myrtle Warbler pick at fruit opened
pulled it out – carried seed to
ground below tree. & dropped it

also lots of opened capsules under
tree!

Trip List 2/27 - 3/23
Yucatan Peninsula including
Sian Ka'an, FCP, Cozumel (2 days)
Chichen Itza, Uxmal Valladolid ruins.

Brown Booby immature - Cozumel
Doublecrested Cormorant
Neotropic Cormorant
Anhinga (Rd to Chetumal)
Magnificent Frigatebird
Great Blue Heron
(Great White Heron) 1 Sisal
Great Egret
Snowy Egret
Little Blue Heron
Tricolored Heron
Cattle Egret
Green Heron
Wood Stork
White Ibis
Blue winged Teal
Lesser Scaup
Turkey Vulture
Lesser Yellow-headed Vulture
Black Vulture
Gray-headed Kite
Hook-billed Kite

Swallow-tailed Kite
Crane Hawk
Common Black Hawk
Gray Hawk
Roadside Hawk
Short-tailed Hawk
Zone-tailed Hawk - Puerto Morelos
Ornate Hawk Eagle
Laughing Falcon
Crested Caracara
Collared Forest Falcon
American Kestrel
Merlin
Bat Falcon
Chachalaca
?Great Curassow
Black-throated Bobwhite - none at Reserve
seen near Tizimin
Ocellated Turkey - 2' total in Reserve area

Sora (Rio Lagartos)
Gray-necked Wood Rail
American Coot
Jacana
B. B. Plover
Semipalmated Plover
Killdeer

Greater Yellowlegs
Lesser Yellowlegs
Willet
Spotted Sandpiper
Ruddy Turnstone
Least Sandpiper
Western Sandpiper
B. N. Stilt
Laughing Gull
Herring Gull
Royal Tern
Sandwich Tern
Black Skimmer
White-Crowned Pigeon
Red-billed Pigeon
Mourning Dove P. Morelos
Zenaida Dove
White winged Dove
Common Ground Dove
Ruddy Ground Dove
Blue Ground Dove
White-tipped Dove
Caribbean Dove
Aztec Parakeet
Brown Hooded Parrot (Kohunlich) 5-6
Yellow-lored Parrot
White-fronted Parrot

Squirrel Cuckoo
Smooth-billed Ani
Groove-billed Ani
Striped Cuckoo
Pheasant Cuckoo
Lesser Roadrunner
Mottled Owl 3-4 FCP
Black and White owl pr at Punta Lagunas
Ferruginous Owl
Pauraque
Yucatan Poorwill
Tawny-collared Night Jar
Vaux Swift
W.T. Sabrewing
G.B. Mango
F.T. Emerald
W.B. Emerald
Mexican Sheartail
Ruby-throated hummingbird
B.H. Trogon
Collared Trogon
Violaceous Trogon
Ringed Kingfisher
Green Kingfisher
Belted Kingfisher
T.B. Motmot
B.C. Motmot

K.B. Toucan
C. Aracari
Lineated Woodpecker
G.F. Woodpecker
Yucatan Woodpecker
L. Backed Woodpecker
Smoky-brown Woodpecker
Pale-billed Woodpecker
Tawny-winged Woodcreeper
Ruddy Woodcreeper
Barred Woodcreeper
Olivaceous Woodcreeper
Ivory-billed Woodcreeper
R.B. Spinetail
Plain Xenops
Barred Antshrike
B.F. Antthrush
Red-capped Manakin
Gray-collared Becard
Rose-throated Becard
Masked Tityra
Black-crowned Tityra
Tropical Kingbird
Vermilion Flycatcher
Couch's Kingbird

Social Flycatcher
Great Kiskadee
Boat-billed Flycatcher
Great Crested Flycatcher
Brown-crested Flycatcher
Yucatan Flycatcher
Dusky-capped Flycatcher
Tropical Pewee
Least Flycatcher
~~[illegible]~~ S.T. Spadebill
Yellow-olive Flycatcher
Northern Bentbill
Yellow-bellied Elaenia
Greenish Elaenia
Northern Beardless Tyrannulet
Mangrove Swallow
Purple Martin
Barn Swallow
R. Winged Swallow
Cave Swallow
Brown Jay
Yucatan Jay
Yucatan Wren
Carolina Wren
W. B. Wren
House Wren
Cozumel Wren

Cozumel thrasher
Black Catbird
Gray Catbird
Tropical Mockingbird
Clay-colored Robin
~~Wood Thrush~~
Blue Gray Gnatcatcher
Tropical Gnatcatcher
L.B. Gnatwren
R.B Peppershrike
Cozumel Vireo
W. E. Vireo
Mangrove Vireo
Y. T. Vireo
Y. G. Vireo
Yucatan Vireo
Tawny-crowned Greenlet
Lesser Greenlet
R. L. Honeycreeper
Bananaquit
B+W Warbler
Blue-winged Warbler
N. Parula
Yellow Warbler

Magnolia Warbler
B. T. Blue warbler
Myrtle warbler
Yellowthroated warbler
Ovenbird
N. Waterthrush
Com. yellowthroat
~~Y. B.~~ G T ~~R. B.~~ chat
Hooded warbler
Am. Redstart
M. oropendola
Y. B. cacique
Bronzed cowbird
G. t. grackle
Orchard Oriole
Black cowled oriole
Hooded Oriole
Yellow-tailed Oriole
Yellow backed Oriole
Altamira Oriole
Baltimore Oriole
Orange Oriole
Red-winged Blackbird
Scrub Euphonia
Yellowthroated Euphonia
Blue-gray Tanager

Summer Tanager
Rose-throated tanager
Red-throated Ant tanager
B. headed Saltator
Grayish Saltator
Cardinal
R. B. Grosbeak
Blue Grosbeak
Blue Bunting
Indigo Bunting
Painted Bunting
Y. F. Grassquit
W. c. seedeater
Blue-black grassquit
Olive sparrow
Green backed sparrow
Savannah Sparrow

3/23 3:00pm ([illegible])
[illegible] [illegible]
[illegible] Vm 4 fcp → [illegible]
[illegible] 1

100 [illegible] 1L
2mm [illegible] fly 1L
100 2mm [illegible] 1?
200
7m spider [illegible] 5m
spir 1t

200 5m [illegible] 1?

300 4mm [illegible] 1h

200 2.5mm [illegible] 1b
8mm spir 1?

200 3m [illegible] 1b
100
200
1600
100
200
200

200 5mm fly 1L
100
100

10 [illegible]

Transect 2 - more open

50 8mm cat 1f
50 7mm yellow spot [illegible]
col. hump 1L
150 4mm yellow spot 1f
2.5 cm brown [illegible]

100

3mm fly 1b

1mm [illegible] 1f

4mm [illegible] 1b

150 5mm cat 1L

4mm [illegible]

100 3mm [illegible] 1b

50 2cm [illegible] 1b

200
50 3mm spot 1b

150 4mm bi spot 1t

---

100 5mm spot ~~tan~~ [illegible] 1t
8mm cat 1L

9mm cat 1h

100
50 9mm spot 1L

150
100 5mm spot 1h
150 3mm hump 1b

100 5mm spot 1L
3mm green spot 1b
7mm yellow spot 1b
150
5mm hump yellow spot 1L
30.cm [illegible] 1b
50 4mm hump [illegible] 1b

100
100 5mm green spot

50 9mm cat 1f

150
200

100
2 cm wasp 1t
5 mm spotted hump 1t
50
0 2 mm spider 12
50
50 3 mm green spider 1t
50 4 mm green spider 1b
6 mm spotted hump 1t
4 mm hump ad 1t
200
2000

Transect 3

5m [illegible] 1h
150 3 mm fly 1t
100 4 mm beetle br 1h
7 mm spider 1h
3 mm ladybug 1b
2 cm moth 1b
150 4 mm brown hump 1b
3 mm green 1t patch
50
100
100 3 mm spider 1b
50 4 mm spider 1b
5 mm green spider 1b
50 3 mm green spider 1b
200 – 3 mm hump 1b
100 – 4 mm gr spider 1b
100 5 mm red spider 1b
5 mm gr spider 1
100 – 3 mm gr spider 1b
Red spotted hump 3 mm 1t

4mm Reddish beetle

200

50

100 4mm white spider

5mm green lt

Moist

3/24 along Rd 5 km

Still going to WEU

Bursera partly
out flowers + fruit now

Transect 4

200 4mm long nymph

100 2mm weevil lb

4mm spider lt

50 12mm brown
caterpillar lt

100

200

3/24

Transect 4

100

100 3mm spider lb

6mm [illegible] nymph lb

200

7mm Red + Black coccinellid

3cm hairy yellow brown
caterpillar lb

100

50 5mm Red spider lb

500

100

200 3mm spider lb

5mm green spider lb

1000

100 5mm yellow spotted beetle lb

100 3mm ant lb

4mm long lt

4mm spider lb

3mm longer nymph

100

50 5mm green spider lt

2cm hempt adult
little orge marks
brow 1b

250

100 2 ants

6mm fulgoroid ad 1b

100

100

Baseline wt = 500
Fruits
+ new flowers

Transect T

200 - 2mm black spider 1b
4mm fly 1b

100 2 ants

100

100

115 3mm homop 1b

ant

1cm lacewing 1b

200

200 ant

200

150 5mm Rove black coccinellid

250 3mm spider 1b

50 2cm green hemipteran 1b

1mm beetle 1b

1mm weevil 1b

200

2mm homop 1b

145

150

150 3mm spider + web 1b

150 5mm green spider 1b

4mm [illegible] 1h
1 in [illegible]

100

[illegible] 6

200 3mm [illegible] [illegible]
[illegible]

50 1mm [illegible] [illegible] 1h
3mm [illegible] 1t

50

50

50 3mm [illegible] [illegible] 1h
3mm [illegible] [illegible]
3mm [illegible] 1h

100 3m 1h

3mm [illegible] 1h
3mm [illegible] 1h

150 4mm [illegible] 1h
3mm [illegible] 1h hr

2cm Brown [illegible] ~~[illegible]~~ [illegible]
heap 1t

250 [illegible]

100

150 3mm [illegible] 1h

[illegible]

150 2.5 cm hopper
orange on thorax
17

200

150 1.5 cm caterpillar 1b

2.5 cm hopper
1b

3mm spider 1b

50 4mm stephanid 1b

1500 4mm green spider 1b

200

200 several small flies
1b

7mm
spider 1b

7mm moth 1b

2mm beetle

300

Transect 7

50 2cm lepidopter pupae

200 3mm spider 1b

2mm insect 1b

200

150 - 4mm hopper 1b

2.5cm - hopper (same [illegible] range

1b

30 3mm leafhopper 1b

150 3mm spider 1b

50 3mm green spider 1b

2mm spider 1b

2 ants

700

200 3mm green spider 1b

280

300 3mm red spider 1b

[illegible] 5 ~~spiders~~ ants

8 ants

100

3mm green spider 1b

200 4mm hopper 1b

100 3mm [illegible] spider 1b

4mm fly 1b

100 ant

300

400 4mm spider 1b

100 3mm spider

100

3mm spider

775

3/24

245 [illegible] – [illegible]

200 3mm fly 1b

100 3mm spin 1b

100

100 2mm spin 1b

100 ([illegible])

200

100

100 5mm [illegible]?

200

4mm spin

100 5mm spin 1b

100 4mm spin

100 3mm spin

3mm fly 1b

150

1000] 50 3mm [illegible] [illegible]

100

200

2000]

100

3mm spin

3mm spin

200

200

4

[illegible]

300 [illegible]

5mm [illegible] [illegible]

3mm fly?

200 4mm [illegible]

3mm [illegible]] 1b

100

Red Marjorie

100

100 2 ants

200 3mm [illegible]

~~8mm gr [illegible]~~

3mm gr [illegible]

17

150

300 3mm black bead 12

3mm [illegible] lb

3mm [illegible] ?

3mm [illegible] 12

3mm [illegible] 12

150

400

100

1600

200

100 4mm [illegible]

4mm [illegible]

150 3mm spider lb

2100

200 - 3mm [illegible]

Red Mangrove   Bon Pulk

350
200
410

2m spark

1cm [illegible] 1h

200

100 3mm ~~[illegible]~~ gen 1b hasil

200 3mm hasid 1h

200 3mm [illegible]

100

1750

800

32

44E 231

44E 231

800-1000 clear

Tulum Mangrove Swamp Black Arg sun
new Ruins

100 - 3mm hyst 1h yr

100 3mm spir 1d
3m fly
3m +5

150
ant
ar
3mm spar 1h

100

3mm [illegible]
3mm [illegible] 1h

100 3mm [illegible] 1L
3mm f5 A!

100

100 3mm [illegible] 1B

100 1cm [illegible] 1L

100

100 4mm spider [illegible]

3mm spider 1h

14

4mm wasp 1L

100 4mm moth? 1h

200 4mm moth 1h

3mm ? 1h

4mm moth 1h

4mm [illegible] 1L

3mm fly 1L

200

1750
200 4mm spider

---

100 cat

(10mm caterpillar 1 Scan cat)

3mm beetle 1L

100

3mm spider 1h

10mm fly 1L

200 3mm beetle 1L

200 3mm fly 1L

200

100 3mm spider

~~200 3mm fly 1L~~ [illegible] Ray
Migney

5mm [illegible] 1h

3mm [illegible] 1h

300 3mm [illegible] 1h

4mm fly 1L

100

100 4mm moth 1b

100
4mm [illegible] 16

3mm [illegible] 17

100 3mm hungry [illegible] 16

3 3mm [illegible] insects
100 [illegible]

100 2cm crickets
[illegible]
-11 2

4mm cricket 1pm

200 2 x 3mm hungry 12

4000

3/10

Tree by First
Laguna - lite strd
due to lite cab
Bird Marked at tree &
seen feeding 3/9
6 40:

703 WW WEV

65"

2 fruit?
5" handling time

~~[illegible]~~ singing in tree!

710 WW in tree 17"
WEV

716 pr of R.T Tanager

pass through tree

721 - ~~WEV~~ S. [illegible]
Sit in tree 50"

727
WEV - WW 53"
got two fruit 7"
8"
tried one 1"

silent

734 WEV WW - 58"
3" (+) —
5" (-) —
3" - left tree with seed

738 Yucatan flycatcher caught insect
in tree & left 10"

In area: B. H. Saltators Or. B. sparrow
Y-O. Flycatcher
R.T Tanager
Yucatan Flycatcher
& WEV WW

703 - 63" tried 2 2" WEV WW
& L, 4"

look for 20"

3/10
8:10 windy

8:50 WEV WW
ate 1 fruit 3"
left for 20"
back 40"

9:12 WEVs chased
another bird (unid)
~~Both~~ is
ousting them

9:13 ♂ BTB sitting
tree 60"
didn't try or
eat any fruit

↓

10:00

7 WEV visits 10-15 fruit

3/11 windy - mostly clear
245pm same tree as morn

2:49 WEV (?) in tree 20"
then out

[illegible] Least flyc. 60" no attempts

(new tree C. Arecari
M. Tigre)

Same Tree (on first [illegible])

6:00 March 11

[In area B.C.Tit
C.Anna's R.S.
B.t.Sittine
M.Tyr Bell's

640 craft fly c
1'30 no
attempt

641 MW♀ 2" in tree

704 WEV uw 3V"

[illegible] one - pills "
[illegible] 2

tried 2nd
3rd 6"
4th - 4"

712 ♀ MW 20"

724 WEV visit
I scared it
out of tree
when I got up

741
WEV um very quickly
got 3 fr.ts 3" each

Wind up at 730
→ it then very windy

752 um WEV from left
again - sat sitting for 30"
very suddenly scared out
by calls of flying Accip

824 30" visit LEV um?
?

834 150" 1 try WEV um
+ - 4"
+ - 3"

915 WEV um 164"
(very [illegible] on [illegible])
Spit out seed on [illegible])
+ - 3"

⊖ - 2"
⊕ 3"

⊕ 1 [illegible] out of the [illegible]

928 WEV ww

30" tried one fruit

+ flew out

939 WEV(?)
built 20"
tried one fruit

948 WEV un
13"
+ 3"
spitting seed
+5"
⊖ 2"

954 WEV an
try one
20"

wv 5.9 [illegible]
4/10 fruit
6
un 8/11

Total = 11 12/2[illegible]

No Exposed cal.

3/12 Tree on Rd to
6:00 am Laguna day 3

8:00 wind is up

[Birds in area
B. h. saltators]

heard very little crow

activity in area
this morning

921 WEV ww
30" tried 3 times
2" each failed

925 WEV ww
20" got one
didn't get one

835 5" WEV squeezed
one fruit
unknown?

837 55" WEV ww
3 fruits ?, 8, 6"

938 50" tried 3 got last - 3"
4 fruits

~~4 fruit~~
5 f / [illegible]
2

WEV ww
956 2 fruit 70 sec ww

Afternoon walk

3/12

3:30 Tree #12

clear + breezy

355 WEU came briefly

couldn't see

[C. Trogon near tree]

Nade mas?

Legion tree

Jan 13

609 clear calm

Tree (exposed arid)

630 Lots of vireo (warbler - sing)

Y.B - Y. woodpecker

Elaenia

R.T Becard

G.B Sparrow

M. Tityra

B.L Trogon

B. h Swallow

BTG warbler

Attila

G. Jay

S. Euphonia

G.f woodpecker

C.C Robin

B.C oriole

65 T. Greenish Elaenia

chased out by W.EU while

tried one

+ failed

Two WEUs? 5's Tried 1 - orpuod

pink col -

left

got second 3"

both left 5"

6 Elaenia returned 20"

7:12
WEU [illegible]
8 8"
cle 6
left one exposed

728
Pr of 4 [illegible]
woolpines
ate one

fruit
multiple purpose
and (opened forces

WEU in 26"
chisel out day
4 4. wool pine
fruit 1 & other 1
fruit

woolpines until hammered
or bee hunting
of Busen &
nearly 3 Busen

751 WEU WW
4 fruit 3" each
[illegible]) 80" in tec

809 60" WEU
3 fruit
3 sec. each
daily in tec

(13)

842 WW WEU
first 1"
2nd 6"
3rd 3"
} 60"
lost ~~for~~ left 60" probably
1-2 more?

(15) 15

Watch 8:30
Bush 9:00

858 100''

very gray WEV (neighbor)

tried 1
got 1
opened rotten one grub
got 1
left

922 Interloper
enters tree
WW chases it out
vigorous chase!

925 Interloper came back
worked on fruit — chased out by WW
long vigorous chase

929 - WEV (in?) in 10''
maybe got 1 fruit??

934 - WEV in 30''
got 1
missed 1
(very nervous)

943 WW WEV entered
tree 150'' then down
down under tree to
chase another one

March 19 Chichen-Itza
5:50
trees by Rest house

Tree A – 300 fruit No leaves
3-4 flowerheads

Tree B (Right) 1-2,000 fruit
No leaves

Overcast

6:06 Tree A 20" WEV ⊕ } left tree
607 A 30" WEV ⊕

Very shallow

610 – 617 confusion

~~WEV~~ YTV in A
chased to tree B by
2nd YTV
WEV Tree B
2 Altamira orioles – 700
2

2nd YTV then flew in
Tree A (then YTV chased out)

~~By~~ Orioles chasing
Various to perphy

Lit woodpeckers use!

couldn't keep track here's
what probably happened:

YTVs got at least [illegible] fruit
tree I could have
WEV ? (1 fruit)

Orioles tried every fruit (40-50 +)
while upside down 2+
periodically att seed
for 30+ sec)

620 YTV arrived tried 2 fruit ⊖
then chased out by YTV 2nd
in tree nervously singing
for 60"

628 – Pipras carrying food
for young birds in tree

[B.h. saltators in area]
S. Flyc.
Kiskadee

WEV
637 1 bird in tree
1 try – 1 fruit

638 – WEV in tree A 300 – 7 tries
1 fruit – knocked
another
left it
4TV " " "
→ 5 tries
already
ate one knocked
fruit

Tree B – Both carrying
300
3-4 tries each
no go

647 Pr M Tityras
Tree B
→ 1 yet 1 failed
2"
Pr C.l. Robins
n...
m...

Tityras Tree A – [illegible]
90"

653 – 4TV – 50" Tree A 1 try ⊖
70" Tree B 4 tries ⊖

659 –
4TV in tree A – fruit ate
then Tityra fr
4TV Tree B — 5 tries
then Tityras to
B.-b. Flyc.

Tityra supplanted 4TV + tried
once ⊖

703 all sitting around doing nothing!

→ Tityra left ~~[illegible]~~ 2 got 2
fruit (2", 10")
tried 3
other
4TV flew to
tried 3 more
Tree A

711 YTU sitting
in Tree A

723 180'
WEU check 8
got Nock
removed 1 whole one
a fruit &
hammered for 14"
Fruit dropped
& Vireo dove
after it
almost to ground

753 - 4 Tityra tree A 30" trade
tree B - 2'00 Nock

TREE B has almost
all of its crop - large
fruit to [illegible] Reached fruit

Tree A is almost
fine with small
green fruit !?

Social
flycatchers thickets
going after fruiting vines
with larger
fruit

124-822 WEU tried 22 fruit
got 1

return for 2'00
checked 10 fruit
got one more

One tried for 60" !

Very vigorous trying

832 YTU in tree
A 30"
then the B
for 2'00
tried 8 fruit
WEU in tree
B briefly singing
Nada
841 YTU back
in for 20"
WEU
848: 30" tried 5
fruit
singing

To

9:00

	Visits	tried	[illegible]
WEU	10		9
YTU	10		5
Tityra	5 (3)		3
A. morula	4 (2)		0 (2)
C. c. Robin	2		0
Go	1		1?
	32		18

March 27 Uxmal

Tree A ~1,000-1,500
Tree B 4,000
tree C 10,000

Two Big trees by parking
lot (same as in Nov)
Lots of fruit - No leaves

Quantity
like
trees A + B
Quantity tree
C

{50-70% of fruit has
been removed based on
fruit scars.

cold & clear

A left B Right

[C Behind]

(C RT Behind ♀) → flyout 2 fruits / 5''

B - Behind ♀ - no fruit eating

6:00 Mexican Jay 1 ad B - tried
6 - got 3
picked coat of seed
couldn't tell if it
ate seed

(

Flock 3-~~4~~7 in tree C

607 Another Jay in Tree B

610 Orange oriole ♂ 117'' 12 tries
no success

612 WEV - 30'' Tree A
30'' Tree B

613 RV wood (tree C) → tree B
tried one tree A
[Mexican Jay B]
[Hooded oriole]
~~[illegible]~~
at least 30''
[illegible]

614 20'' [H. oriole] tree A probing fig
out
sling

617 tree A 35'' WEV 3 tries

[sound flyc. hanging out]

Tree C G. F wood

Altamira Oriole — tried 12
no luck

Mexican Jays — 10 fruit tried
got 3 holding
fruit dropping seed
over perch —
~30" per fruit

Since 5'00 A oriole seen
got 2 fruit pulp
ate off seed
on stem 40-50"

WEV 55" tried 3 ⊖

626 Soc. Flyc. in B, A
No feeding

633
Tree C
2 ~~Mex~~ Y. Jays
each tried 8
only got 2 fruit
dropped seed in
carried seed off in
[illegible]

640 A. M oriole
2'00 tree B
tried 7 Nada
2'00 Tree A tried 4 nada

652 Pygmy Owl in Tree B

654 2 S.flyc. + pr. H orioles
come in to mob
owl — all left

658 WEV Tree C
30"

Pr. T kingbirds Tree A
got 1 (3") ok
seed

!
(Tree C
pirated seed from WEV
after exposure)

Tree A WEV 30" got
seed

Returned got seed

2/2 try

Tree B H. Oriole tried 5 in
60" no

[illegible] Tree C
has orioles (can't see
well)

702 3 G.f. woodpeckers
in Tree C which 3'00
saw 1 possible
success/20 trials
swallowed in 2"

707 A. M oriole 60" 7 fruit tried
then chased out by
G.f. woodpecker which
then left

712 G.f. ~~[illegible]~~ woodpeck but
2 fruits/100 tries
swallowed
Grayish saltator 3'00
tried 50
got 2
chased by
woodpker

715 Pr ut 4 Toucans in Tree C ←
For 3'00

were in Tree A 30"
then Tree B 20" tried 1

720 120 Altamira oriole
tried 15 fruit pk
in 30-50"

Tree C still has Grayish saltator

2 Hoodeds chased out Altamira
no feeding

(Saltator left 730
tried every fruit once
a time! hundreds

Tree A
20" WEV got 1

Tree B & Br. c. Flyc. sallied got 1
another
sallied ~~got~~ ⊖

Yucatan Jay tried several ⊖
Altamira oriole " " ⊖

Yucatan Jay chased vireo
when it got capsule

f.k., s. flyc. No foraging
s. fly → Br. c flyc.
[C. Elaenia Tree A]

Orange orioles in 2'00 each
3-4 tries

Altamira pr → 2'00 > 7 tries
then 1 alone ⊖

[Beard, woodpecker in tree C

740 Tree B WEV 20"
got 1

Orange oriole got one unhulled
after 10-12
tries

woodpecker chased it
away & ate fruit
& u. Scrub Vireo seen
in a bit
immediately chased it
away
Beard. came in briefly

woodpecker in for 60"
748 ~~AA~~ Scrub vireo in
tree A, 10' got fruit
Altamira oriole in tree A
20" left

? + w s flyc tried]

AA
Oriole cleaned one seed

[Tree C woodpecker, ~~AA~~ Y. Jay

4. R Oriole Tree B chased
Out by S. flycatcher

759 Sitting Tree B brief

Altamira orioles Tree A
1 got 1 – 30" perched
look

[Tree C Altamira Oriole]

[804 WEV Tree C got fruit
long, handling time]

S. flycatcher

806 WEV Tree D
2 try got again

got 1 2" handling time
brief

809 S. flyc tree A chased
bird in Tree C

817 S. flyc, T. kingbird + 3 A.o's

got 1 3"
fruit

got 1

818 S. flyc 2:00 Tree A
got 1 fruit

[4. Jays in Tree C]

821 WEV 1:20 Tree B
got 2/2 fruit

822 Peppshr Tree A
then B for 60"
got 3 fruit
all grabbed 30, 10, 10"
& picked

~~@1st~~ A.M oriole 30" Tree B

[C = Y.G. Good,
th A. Moriole

830 Tree A – A.M oriole tree B

837 Tree B
D.C flyc. 30" tried 1 (–)
chased Tim

832 A.M oriole Tree B 30"

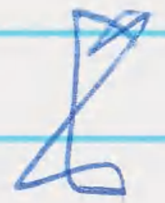
834 WEV Tree B 50"
got 1 after 3 tries

831 2nd WEV in Tree
B got fruit in 35"
chased by 1st WEV

[Tree C Pepper shrike
YT Vireo]

841 2 A.M. orioles
Tree B
60" then to Tree C
5 Yucatan Jays in E

846 T. kgbird Tree B / 2nd kgbd
& chasing



got 1 3" [illegible]
tried 2x more

3 Social flycatchers
↓
851 1 To A got fruit
D.c. flycatcher in

851 strong wind
All but 2 kingbirds
left

Tree B Y. Jay tried
3 one grabbed
& dropped ⊖
tried to pirate fruit
from T. kgbird (+) 3"+

852 kgbird left, then Jay

854 WEV tree A got 1 ⊕
4"
855 Tree B Hooded oriole

[WEV Tree C, Y. Jay
A. M oriole]

858 – Pr AM orioles 15-20 fruit ⊖
Mangrove Vireo 10"
Yucatan woodpecker tree B 20"
tree A → C

1. Fruit closed capsule that
ripens without obvious color change
2 aril + seed red to be
swallowed whole

Phenology
3. long ripening season 7-9 mo
accelerating

4. Intraspecific aggression

5. No wastage

6 Dispersal by toucans, [illegible] [illegible] &
[illegible]

7. constancy of individual visitors

8 Sampling behavior

9 depletion of crop

Feat	Tree 1 Points	2 Points Taken	3 P[illegible]
WEU	6		

Introduction –

Possible importance of [illegible]
birds as dispersers –
~~of~~ Occur in large numbers
Howe & DeSteven
Morton, Greenberg
Martin,
mainly "cheap fruit"

Fruit syndromes – large specialized
fruits versus small diverse fruit

Migrants are small so must migrate
fruits are small & abundant too (exceptions – Lauraceae)

Nature & possible association with
a territorial no possible migrant
Their bird feeders at a more
specialized foraging system

Previous work on Bursera
Phenology
Dispersal

Background on Virola
Methods
Study site

Phenology –
1 Flowers April – May

2 mature capsules August – May

3. ~~Eq~~ ripe capsules often Oct – March

probably August – May

1. ripening rates low – ~~except some trees~~ increases ~~fin~~
later in season

Fruit structure –
closed capsule
greenish
Capsules open when ripe
~~with pulp~~ seed with colored aril
Size + color

~~Imports~~ foraging of fruit eating in
W.E.W.

Abundance of Bursera

Visitations - Fall, February, March

other sites.

Counting - focal trees

Feeding behaviour ~~+ [illegible]~~

Dispersers
a Visitors
b by flycatchers
~~c~~
Robbers
warblers etc.

Seed dispersal

Feeding time + visit length

Aggression & avoidance

a) ~~[illegible]~~ Frequency of use by WEV
16% fall
30% spring

b Concurrence of Bursera + WEV
(forest patch study)

Discussion

Phenology - ~~Need to~~ difficult to determine -
Unusually long fruiting period -
(some trees towards end ripen more
fruit)
other studies

Fruit features

Fruit syndrome — species with
elongated capsule
promotes close synchrony
of fruit crop

Fruit wall — difficult to remove
from seed

small size

fruit
no advertisement

All this suggests a small
disperser with a close association
with fruit —

why different from other studies

a) ecotype variation — other Bursera
fruit are larger & Red

b) seasonal shift in "strategy"?

c) Age or size related stage

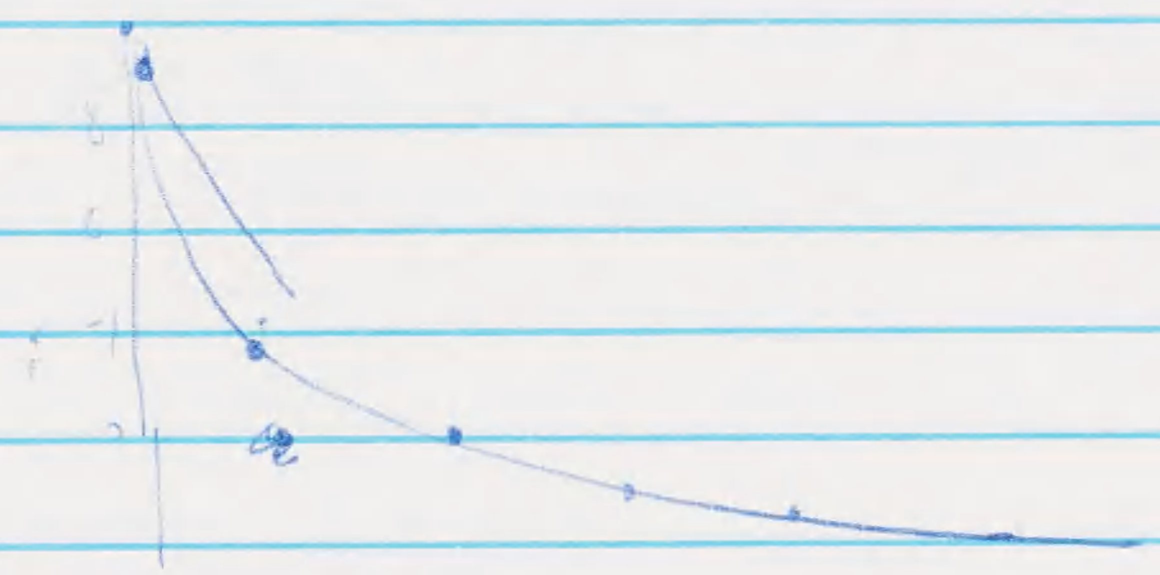
Dispersers	Checkers
Vireos	Yucatan Jays
Tityras	Orioles (3)
Flycatchers	Peppershrike
Becard	Warblers
~~Tr~~	Greenlet?
R Trogons	

	≈ 33 trees	
V. Trogon	1	?
Yucatan woodpecker	2	?
G. F woodpecker	1	?
B. crowned tityra =	1	D
M. Tityra ≈	7	D
R. T Becard	4	D
G. C. Becard	1	D
Yucatan Jay	1	C
Social Flycatcher	1	D
Dusky-capped flycatcher	1	D
B. C. Flycatcher	25	D
Yucatan Vireo	4	D
Yellow-throated Vireo	10-15	D
W. E Vireo	30	D?
C. C. Robin	1	?
Peppershrike	2-3	C
Greenlet	1	?
L. flycatcher	2	?

Magnolia Warbler	1	C
Parula warbler	3	C
B. T. G. Warbler	3	C
R. T tanager	1	D
R T A T	1	D
Blue Bunting	1	D
B. h saltator	1	D
Orange oriole	1	C
Altamira Oriole	1	C
Hooded Oriole	2	C
B. Cowled oriole	1	C

25 species

F



Mari's Book problems

Hard to follow with all
characters

~~Needs~~ and other repetitions

Should use Tables - more

Figures are poor

~~Ec~~ Morphology is poorly
covered

Too much emphasis on
place words Dendroica

Feeding times

[illegible]	4
MW	10
Parw	7
BTG	5
WEV	7
YTV	3

Tityra
Peppershrike
Social Flycatcher

Sunday

Photos

Monday Laura - Mc trees
Mercedes - John watch birds

Field Notes

Tuesday Mc tree } others to Coba

Wednesday All 4 trees

↓

Thursday Cozumel

Fri
Saturday } Cancun
Sunday

Monday Chichen Itza

Tuesday ~~Sunday~~ Uxmal

Wednesday Celestun ? or Sisal ?

Thursday back to Cancun

Fri / Sat / Sunday John & I travel Chiapas

	R	J	M	L
Fri	TW	Territory Pillow Tape	[illegible] [illegible] [illegible]	[illegible] TW
Sat				
Sat L	~~TW~~	Forging	~~TW~~	TW
Sund	~~TW~~ / map	/ map	[illegible] LT	
Mond	~~Forg~~ / photo	Forg / 3	[illegible],	TW
Tuesday	~~TW~~ TW	~~Forging~~ Forging	~~TW~~	TW

Other Things—

1) Finish Muse's book — rough out
review

2) PEW statement of interest

& afternoon [illegible]

64
22

30
20

170

20
.6

5 .12

95

.3

49
12

35

265

~~Extend morning [illegible]~~

~~Try to meet [illegible] bay~~
~~at [illegible] [illegible]~~

~~Map [illegible]~~

~~Try [illegible] [illegible]~~

Mich Trees

Call Ingrid

Call Barbara

Arthur & [illegible]

Tomorrow

~~Flashlight~~

~~Net~~

~~Color bands~~

~~Scale~~

~~String~~

In town

Laundry

~~Director~~

Fruit photos

Trip List

Things to do

Fruit samples

~~crop size~~

Visit to fruit
trees 11/15 s/—

~~Visit to~~
~~Airport trees~~

2 more?

~~Trees on [illegible]~~
~~[illegible]~~

[illegible] [illegible]
[illegible] [illegible]

~~Forest Patch study~~

~~[illegible] trees~~
~~at [illegible]~~
~~[illegible] size~~

~~bp size~~ / done

~~handling trails~~
[illegible]